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EXAMINER	
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ART UNIT	**PAPER NUMBER**
2625	8

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/770,893	Applicant(s) RIJAVEC ET AL.	
	Examiner Christopher T. Sukhaphadhana	Art Unit 2625	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *11 June 2004*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-62* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-62* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *26 January 2001* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

1. The Amendment filed 11 June 2004 has been entered in full.

2. Based on Applicant's amendments, the claim objections and the rejections under 35 USC 112 are withdrawn.

Response to Arguments

3. Applicant's arguments regarding the Epstein rejection of **claim 1 et al** on pages 12-14 of the Amendment filed 11 June 2004 have been fully considered but they are not persuasive.

Applicant argues in substance that:

a. Epstein does not disclose of suggest the decoding information including data from at least one line of the two dimensional data preceding the location on the line of data addressed by the pointer because the claims require that the decoding information include the actual, not coded, data.

The claims as recited do not necessarily require "actual" data, but rather "data from at least one line of the two dimensional data preceding the location on the line of data addressed by the pointer". While the Examiner agrees that Epstein teaches coefficients, the claim language does not exclude "coefficients" or "transformed data". Specifically, as noted by Applicant in the last paragraph on page 13, the calculated absolute coefficient value is derived from the relative coefficient values for all previous minimal coded units in the bitstream, where the previous minimal coded units include

data from at least one line of the two dimensional data preceding the location on the line of the data addressed by the pointer (see Fig 4).

b. Epstein does not disclose using data from the lines of the data, which is not encoded, to decode compressed data from the accessed location.

Epstein discloses storing the calculated absolute coefficient (mentioned above) in the prescan table 225 (col 7, line 28-31) and using the information stored in the prescan table to decode a selected image area from the bitstream (col 7, lines 62-67). These teachings meet the limitations as recited, where the calculated absolute coefficient is the data from the at least one line of the two dimensional data (see previous paragraph).

4. Applicant's arguments regarding the Epstein rejection of **claim 6 et al** on pages 14-15 of the Amendment filed 11 June 2004 have been fully considered but they are not persuasive.

Applicant argues in substance that:

c. Epstein teaches away from generating reentry data sets when decoding an input compressed data stream because col 5 processes bitstream 8, which is actual image data, and not an input compressed data stream as claimed.

On the contrary, in Fig 1, bitstream 8 is labeled as an "encoded bitstream". Col 5, line 18, states that the data bitstream 8 is transmitted in a compressed encoded data format. Col 5, line 58, refers to "decoding the bitstream 8". Therefore, bitstream 8 is an input compressed data stream and meets the limitation as claimed.

d. Col 4 does not disclose outputting an output compressed data stream that comprises the compressed data decoded using the reentry data sets.

Examiner agrees. However, col 5 and Fig 2 disclose the outputting as claimed. As shown in Fig 2, both "encoded data for selected image area" and "bitstream location information" are sent to the decoder 220. The "encoded data for selected image area" and "bitstream location information" comprise the compressed data decoded using the reentry data sets as claimed. Note also, the similarity to ref no 102 and 104 from Fig 1 of the present application.

5. Applicant's arguments regarding the Epstein rejection of **claim 11 et al** on page 15 of the Amendment filed 11 June 2004 have been fully considered but they are not persuasive.

Applicant argues in substance that:

e. <u>The cited coefficients comprise transformed data, not actual decoded data previously decoded.</u>

As per the argument of claim 1, "actual" decoded data is not recited in the claim. The claim requires "using previously decoded data to decode the compressed data stream." The form of the previously decode data comes via the bitstream location information of Fig 2. Namely, the prescanner 210 decodes the data to create the bitstream location information which is sent to the decoder 220 to aid in decoding. Therefore, the decoder uses previously decoded data via the prescan table and prescanner to decode the compressed data stream.

6. Applicant's arguments regarding the Epstein rejection of **claim 12 et al** on pages 15-16 of the Amendment filed 11 June 2004 have been fully considered but they are not persuasive.

Applicant argues in substance that:

f. **Col 7 teaches away from including previously decoded data in the reentry data sets.**

Examiner disagrees. The previously decoded data is included in the reentry data sets (prescan table 225) via the calculated absolute coefficient value of col 7.

7. Applicant's arguments regarding the Epstein rejection of **claim 13 et al** on page 16 of the Amendment filed 11 June 2004 have been fully considered but they are not persuasive.

Applicant argues in substance that:

g. **Col 7 does not disclose the previously decoded data being generated when decoding the compressed data using the reentry data sets.**

As shown in Fig 2, decoder 220 uses the bitstream location information (including the calculated absolute coefficient value) via prescan table 225 and prescanner 210. Prescanner 210 has previously decoded the compressed data to generate the bitstream location information (reentry data sets) which is subsequently used to efficiently locate and decode individual encoded areas of the image in the bitstream 8 that will be processed by the image processing operation (col 5, lines 8-11).

8. Applicant's arguments regarding the Epstein and Slattery rejection of **claim 14 et al** on pages 17-18 of the Amendment filed 11 June 2004 have been fully considered but they are not persuasive.

Applicant argues in substance that:

h. **The combination of Epstein's JPEG with Slattery's ABIC would render the invention unsatisfactory for its intended purpose, ergo there is no suggestion/motivation for combination.**

Epstein discloses the JPEG example as "(o)ne common format... which is well known to those skilled in the art" (col 7, lines 14-16) and intends this disclosure as an example embodiment of the invention, since, as Applicant recognizes, Epstein also discloses in col 5, lines 32-38, that "there is no intention of limiting the scope of the present invention to a particular encoding and decoding scheme; the present invention is applicable in general to any one of the above-mentioned types of encoding and decoding schemes." It was never the Examiner's intention to "physically" combine Epstein's JPEG coefficients with Slattery's ABIC teachings. On the contrary, the Examiner presented what would have been obvious to one of ordinary skill in the art at the time of the invention, i.e. "(t)he incorporation of the ABIC algorithm into Epstein's method would mean that the ABIC seven fixed, nearby pixels and the probability estimates determined from them would be stored *in lieu of* the JPEG absolute coefficient values of Epstein col 7, lines 25-34, in order to remove dependency on previous sections in the compressed input bitstream." (from the 4th sub-paragraph of paragraph 34 of the previous Office Action, emphasis added). That is, one of ordinary skill would have recognized that the Epstein's JPEG teachings were physically incompatible with Slattery's ABIC teachings and would have modified Epstein's teachings to accommodate Slattery's ABIC teachings to take advantage of Slattery's hardware-optimized Q-coder. Therefore, while the combination of JPEG and ABIC would be incompatible, the combination of Epstein's teachings with Slattery's teachings is valid, and the rejection is maintained.

9. No further specific arguments were made regarding the claims.

Examiner's Comments

10. The Applicant argued for the limitations of several dependent claims. If Applicant believes these features are critical or essential to the practice of the invention, Applicant is encouraged to incorporate these features into the independent claims.

11. In preparing a response to this Action, Applicant should consider the Epstein and Slattery rejection of claim 14 in light of the argument of claim 14 above as applicable to the independent claims.

Claim Rejections - 35 USC § 102

12. The following rejections are re-statements of the rejections presented in the previous Office Action, modified only to reflect the arguments above.

13. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

14. **Claims 1-2, 5-9, 11-13, 21-23, 26-30, 32-34, 41-43, 46-50, 52-54, and 62**, are rejected under 35 U.S.C. 102(e) as being anticipated by Epstein et al (U.S. Patent 6,381,371 B1, "Epstein").

15. In regards to **claim 1**, Epstein discloses a method for decompressing a compressed data stream (Fig 1) whose decoded output comprises lines of two-dimensional data (ref no 14, Fig 1), comprising: receiving a compressed data stream (ref no 8, Fig 1); receiving at least one pointer

(col 8, lines 1-13) to a location in the compressed data stream whose decoded output comprises a location on a line of data; receiving decoding information for each received pointer (col 7, lines 21-34) that enables decoding from a point within the compressed data stream addressed by the pointer in one reentry data set; for each received pointer, performing: accessing the location (col 8, lines 1-13) in the compressed data stream addressed by the received pointer; and using the received decoding information (col 7, lines 21-34) to decode compressed data from the accessed location.

Note that the claims as recited do not necessarily require "actual" data, but rather "data from at least one line of the two dimensional data preceding the location on the line of data addressed by the pointer". While Epstein teaches coefficients, the claim language does not exclude "coefficients" or "transformed data". Specifically, the calculated absolute coefficient value is derived from the relative coefficient values for all previous minimal coded units in the bitstream, where the previous minimal coded units include data from at least one line of the two dimensional data preceding the location on the line of the data addressed by the pointer (see Fig 4).

16. In regards to **claim 2**, Epstein further discloses in col 4, lines 42-53, the decoded output comprising image data.

17. In regards to **claim 5**, Epstein further discloses in col 7, lines 35-40 (ref 225), the received pointer and decoding information are included in a reentry data set.

18. In regards to **claim 6**, Epstein further discloses the method further comprising: generating the reentry data sets (col 5, lines 1-11) when decoding an input compressed data stream; and

outputting (col 4, lines 42-53) an output compressed data stream that comprises the compressed data decoded using the reentry data sets.

Note in Fig 1, bitstream 8 is labeled as an "encoded bitstream". Col 5, line 18, states that the data bitstream 8 is transmitted in a compressed encoded data format. Col 5, line 58, refers to "decoding the bitstream 8". Therefore, bitstream 8 is an input compressed data stream and meets the limitation as claimed.

Note also, col 5 and Fig 2 disclose the outputting as claimed. As shown in Fig 2, both "encoded data for selected image area" and "bitstream location information" are sent to the decoder 220. The "encoded data for selected image area" and "bitstream location information" comprise the compressed data decoded using the reentry data sets as claimed. Note also, the similarity to ref no 102 and 104 from Fig 1 of the present application.

19. In regards to **claim 7**, Epstein further discloses in col 8, lines 1-13, the input and output compressed data streams are identical.

20. In regards to **claim 8**, Epstein further discloses in col 7, lines 42-59, the input compressed data stream including more data than the output compressed data stream.

21. In regards to **claim 9**, Epstein further discloses in col 5, lines 1-11, the reentry data sets (prescan table 225) are generated by a reentry decoder (prescanner 210) that decodes the input compressed data stream and passes each reentry data set and the output compressed data stream to a decoder (decoder 220, col 8, lines 1-13) to decode the output compressed data stream using the reentry data sets.

22. In regards to **claim 11**, Epstein further discloses in col 7, lines 20-34, the method further comprising using previously decoded data (absolute coefficient values) to decode the compressed data stream.

Note that "actual" decoded data is not recited in the claim. The claim requires "using previously decoded data to decode the compressed data stream." The form of the previously decode data comes via the bitstream location information of Fig 2. Namely, the prescanner 210 decodes the data to create the bitstream location information which is sent to the decoder 220 to aid in decoding. Therefore, the decoder uses previously decoded data via the prescan table and prescanner to decode the compressed data stream.

23. In regards to **claim 12**, Epstein further discloses in col 7, lines 30-31, the previously decoded data used to decode the compressed data stream being included in the reentry data sets.

Note the previously decoded data is included in the reentry data sets (prescan table 225) via the calculated absolute coefficient value of col 7.

24. In regards to **claim 13**, Epstein further discloses in col 7, lines 28-29, the previously decoded data being generated when decoding the compressed data stream using the reentry data sets.

Note as shown in Fig 2, decoder 220 uses the bitstream location information (including the calculated absolute coefficient value) via prescan table 225 and prescanner 210. Prescanner 210 has previously decoded the compressed data to generate the bitstream location information (reentry data sets) which is subsequently used to efficiently locate and decode individual encoded areas of the image in the bitstream 8 that will be processed by the image processing operation (col 5, lines 8-11).

25. In regards to **claim 21**, Epstein further discloses in col 7, lines 41-67, the method further comprising: receiving multiple pointers to different sections of the compressed data stream and receiving decoding information for each received pointer; and sequentially decoding a portion of each section of the compressed data stream beginning at the location in the compressed data stream addressed by one of the pointers using the decoding information for the pointer.

26. In regards to **claims 22-23, 26-30, 32-34, and 41**, all the elements set forth in these claims have been addressed in the arguments of claims 1-2, 5-9, 11-13, 21 respectively.

27. In regards to **claims 42-43, 46-50, 52-54, and 62**, all the elements set forth in these claims have been addressed in the arguments of claims 1-2, 5-9, 11-13, 21 respectively.

Claim Rejections - 35 USC § 103

28. The following rejections are re-statements of the rejections presented in the previous Office Action, modified only to reflect the arguments above.

29. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

30. **Claims 3-4, 10, 24-25, 31, 44-45, and 51,** are rejected under 35 U.S.C. 103(a) as being unpatentable over Epstein et al (U.S. Patent 6,381,371 B1, cited above, "Epstein").

31. In regards to **claim 3**, Epstein further discloses in col 4, lines 42-53, outputting the decoded data.

Epstein does not expressly disclose the method further comprising: buffering the decoded data.

However, Epstein does teach in col 11, line 30, that the present invention significantly reduces (not eliminates) the amount of buffer memory required in a computer system.

It would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate buffering the decoded data because buffering the data would better prepare the data for outputting to peripheral devices (monitor, printer, etc, see col 4, lines 42-53).

32. In regards to **claim 4**, Epstein does not expressly disclose the buffered decoded data generated comprising a data section having a line width that is less than a line width of the decoded input compressed data stream.

It would have been obvious to one of ordinary skill in the art at the time of the invention to have the buffered decoded data comprising a data section having a line width that is less than a line width of the decoded input compressed data stream because having smaller buffer sections allows for smaller buffers. Smaller buffers save on hardware costs.

33. In regards to **claim 10**, Epstein does not expressly disclose the reentry data sets being generated by an encoder when encoding the compressed data stream.

It would have been obvious to one of ordinary skill in the art at the time of the invention to generate the reentry data sets by an encoder when encoding the compressed data stream because it would save processing time and hardware at the decoding side.

34. In regards to **claims 24-25 and 31**, all the elements set forth in these claims have been addressed in the arguments of claims 3-4 and 10, respectively.

35. In regards to **claims 44-45 and 51**, all the elements set forth in these claims have been addressed in the arguments of claims 3-4 and 10, respectively.

36. **Claims 14-20, 35-40, and 55-61** are rejected under 35 U.S.C. 103(a) as being unpatentable over Epstein et al (U.S. Patent 6,381,371 B1, cited above, "Epstein") as applied to claim 1 above, in combination with Slattery et al (*The Qx-Coder*, IBM Journal of Research and Development, 1998, "Slattery").

37. In regards to **claim 14**, Epstein does not expressly disclose additional previously decoded data in the reentry data set being also used to decode the compressed data stream.

However, Epstein teaches the present invention compatible with arithmetic encoding/decoding schemes (col 5, lines 24-30). Epstein also teaches in col 7, lines 25-34, the usage of the prescanner 210 to calculate and store data (absolute coefficient value) used during selected image area decoding (col 8, lines 1-13) in order to remove dependency on previous sections in the compressed input bitstream (col 7, lines 30-32).

Slattery teaches the ABIC algorithm (section 1, paragraphs 3-4), which is a form of arithmetic coding that relies on the values of seven fixed, nearby pels to determine probability estimates for an expected symbol.

It would have been obvious to one of ordinary skill in the art at the time of the invention to combine Slattery's ABIC algorithm with Epstein's method because Slattery's ABIC algorithm is available on a hardware-optimized Q-coder (Slattery, abstract) that can easily be adapted for use with Epstein's invention. The incorporation of the ABIC algorithm into Epstein's method would mean that the ABIC seven fixed, nearby pixels and the probability estimates determined

from them would be stored in lieu of the JPEG absolute coefficient values of Epstein col 7, lines 25-34, in order to remove dependency on previous sections in the compressed input bitstream. These seven fixed, nearby pixels and the probability estimates determined from them would then read on the additional previously decoded data in the reentry data set also used to decode the compressed data stream of this claim.

38. In regards to **claims 15-16**, Epstein does not expressly disclose the decoding information including probability estimates used to decode the compressed data stream at the location addressed by the pointer, nor the data being decoded using an ABIC algorithm.

However, Epstein teaches the present invention compatible with arithmetic encoding/decoding schemes (col 5, lines 24-30). Epstein also teaches in col 7, lines 25-34, the usage of the prescanner 210 to calculate and store data (absolute coefficient value) used during selected image area decoding (col 8, lines 1-13) in order to remove dependency on previous sections in the compressed input bitstream (col 7, lines 30-32).

Slattery teaches the ABIC algorithm (section 1, paragraphs 3-4), which is a form of arithmetic coding that relies on the values of seven fixed, nearby pels to determine probability estimates for an expected symbol.

It would have been obvious to one of ordinary skill in the art at the time of the invention to combine Slattery's ABIC algorithm with Epstein's method because Slattery's ABIC algorithm is available on a hardware-optimized Q-coder (Slattery, abstract) that can easily be adapted for use with Epstein's invention. The incorporation of the ABIC algorithm into Epstein's method would mean that the ABIC seven fixed, nearby pixels and the probability estimates determined

from them would be stored in lieu of the JPEG absolute coefficient values of Epstein col 7, lines 25-34, in order to remove dependency on previous sections in the compressed input bitstream.

39. In regards to **claim 17**, Epstein further discloses the decoding beginning from the location in the compressed data stream addressed by the pointer in a first reentry data set (col 6, lines 1-12).

Epstein does not expressly disclose the first reentry data set further including all the previously decoded data needed to decode from the pointer in the first reentry data set to generate as output a first line of data.

However, Epstein teaches the present invention compatible with arithmetic encoding/decoding schemes (col 5, lines 24-30). Epstein also teaches in col 7, lines 25-34, the usage of the prescanner 210 to calculate and store data (absolute coefficient value) used during selected image area decoding (col 8, lines 1-13) in order to remove dependency on previous sections in the compressed input bitstream (col 7, lines 30-32).

Slattery teaches the ABIC algorithm (section 1, paragraphs 3-4), which is a form of arithmetic coding that relies on the values of seven fixed, nearby pels to determine probability estimates for an expected symbol.

It would have been obvious to one of ordinary skill in the art at the time of the invention to combine Slattery's ABIC algorithm with Epstein's method because Slattery's ABIC algorithm is available on a hardware-optimized Q-coder (Slattery, abstract) that can easily be adapted for use with Epstein's invention. The incorporation of the ABIC algorithm into Epstein's method would mean that the ABIC seven fixed, nearby pixels and the probability estimates determined from them would be stored in lieu of the JPEG absolute coefficient values of Epstein col 7, lines

25-34, in order to remove dependency on previous sections in the compressed input bitstream. These seven fixed, nearby pixels and the probability estimates determined from them include all the previously decoded data needed to decode from the pointer in the first reentry data set to generate as output a first line of data.

40. In regards to **claim 18**, Epstein further discloses in col 7, lines 41-67, for each reentry data set following a first reentry data set, further comprising using previously decoded data generated using another reentry data set.

41. In regards to **claim 19**, Epstein further discloses in col 7, lines 41-67, each reentry data set following the first reentry data set further including previously decoded data to use when decoding from the location in the compressed data stream addressed by the pointer in the reentry data set.

42. In regards to **claim 20**, Epstein does not expressly disclose the previously decoded data used to decode the compressed data stream comprising a set of nearest neighbor bit values to the bit value generated by decoding the location in the compressed data stream addressed by the pointer.

However, Epstein teaches the present invention compatible with arithmetic encoding/decoding schemes (col 5, lines 24-30). Epstein also teaches in col 7, lines 25-34, the usage of the prescanner 210 to calculate and store data (absolute coefficient value) used during selected image area decoding (col 8, lines 1-13) in order to remove dependency on previous sections in the compressed input bitstream (col 7, lines 30-32).

Slattery teaches the ABIC algorithm (section 1, paragraphs 3-4), which is a form of arithmetic coding that relies on the values of seven fixed, nearby pels to determine probability estimates for an expected symbol.

It would have been obvious to one of ordinary skill in the art at the time of the invention to combine Slattery's ABIC algorithm with Epstein's method because Slattery's ABIC algorithm is available on a hardware-optimized Q-coder (Slattery, abstract) that can easily be adapted for use with Epstein's invention. The incorporation of the ABIC algorithm into Epstein's method would mean that the ABIC seven fixed, nearby pixels and the probability estimates determined from them would be stored in lieu of the JPEG absolute coefficient values of Epstein col 7, lines 25-34, in order to remove dependency on previous sections in the compressed input bitstream. These seven fixed, nearby pixels read on the set of nearest neighbor bit values as claimed.

43. In regards to **claims 35-36 and 37-40**, all the elements set forth in these claims have been addressed in the arguments of claims 14-15 and 17-20, respectively.

44. In regards to **claims 55-61**, all the elements set forth in this claim have been addressed in the argument of claims 14-20, respectively.

Conclusion

45. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after

the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

46. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christopher T. Sukhaphadhana whose telephone number is (703) 306-4148. The examiner can normally be reached on 9a-5p M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bhavesh M. Mehta can be reached on (703) 308-5246. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

CTS

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